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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,346	08/20/2003	Frances Jiang	67,108-013; Jiang 19-6	5862

26096 7590 07/11/2007

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ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
07/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/644,346	JIANG ET AL.	
	Examiner	Art Unit	
	Allahyar Kasraian	~~2609~~ 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claim 7** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 is vague and indefinite because it recites "maintaining the priority of one gateway access terminal if only one gateway user is connected to the gateway access terminal" which is in contradiction with **claim 1** where it recites (in lines1-2 of the claim) "at least one gateway user connected to the network via at least one gateway access terminal" and (in lines 6-7 of the claim) "raising the priority of at least one gateway access terminal". **Claim 1** is interpreted as raising a priority of the gateway access terminal if one or more users are connected to it; however, **claim 7** is interpreted as the priority of the gateway access terminal should not be changed since it has only one user connected. Therefore, **claim 7** does not further limit **claim1**.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claim 1 and 8** are rejected under 35 U.S.C. 102(b) as being anticipated by **Iuoras et al. (U.S. Patent # 6,445,707 B1)**.

Consider **claim 1**, Iuoras et al. clearly shows and disclose a resource allocation method for a communication network (see FIG. 1 for a satellite communication network) having at least one gateway user (see FIG. 1 any user in Terrestrial Network 14) connected to the network via at least one gateway access terminal (See FIG. 12 for Gateway Terminals 12) and at least one non-gateway user (See FIG. 1 for User Terminal 11), comprising: identifying said at least one gateway access terminal (indicated in lines 58-61 of column 36 that each terminal could be identified by three numbers (x,y,z)...); obtaining a data backlog size of said at least one gateway access terminal (indicated in the summary of the invention, line 17 of column 8, for monitoring downlink buffer occupancy which is considered as gateway access terminal backlog size); and selectively raising the priority of at least one gateway access terminal based on the data backlog size (see lines 13-22 of column 8 where it describes of "dynamic close-loop reactive flow control to respond to changes in network loading condition" and further says, "It requires continuous monitoring of cell arrival rates (for ABR and higher priority traffic)... downlink buffer occupancy... in order to calculate the fair rate and amount of rate adoption... It then determines the final fair rate and rate adaptation (increase, decrease or no change) for each UL-DL combination." where ABR stands for Available Bit Rate and it can be

adjusted based on traffic priority to decrease, increase or no change in a network. Also see lines 27-29 where it says, "terminals generating more traffic should be allowed to increase their ACRs above the fair rate").

Consider **claim 8 as applied to claim 1 above**, Iuoras et al. clearly shows and disclose labeling the gateway access terminals as a special quality of service (QoS) class (see descriptions for ABR in claim 1 above, FIG. 1 and lines 36-39 of column 12 where it says, "only ABR services can provide some level of QoS guarantee. The gateway terminals make possible the interfacing of the satellite network with terrestrial networks 14.")

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over **luoras et al. (U.S. Patent # 6,445,707 B1)** in view of **Schiff (U.S. Patent Application Publication # 2004/0018849 A1)**.

Consider **claim 2 as applied to claim 1 above**, luoras et al. disclose the claim invention except the raising step is conducted if the data backlog size of said at least one gateway access terminal is above a predetermined threshold.

In the same field of endeavor, Schiff clearly shows and discloses the raising step is conducted if the data backlog size of said at least one gateway access terminal is above a predetermined threshold (see FIG. 1, 2, and 3. as indicated in lines 6-9 of paragraph [0024] wireless communication 200 in FIG. 2 maybe a component of gateway 110 in FIG. 1 transmitting forward channel data to user devices 130, 140, through communication satellite 120 in FIG. 1 Also as it is clearly stated in lines 10-12 of abstract, "When the queue length is exceeds predetermined upper limit, the transmission power and data rate are increased." The queue length and the

predetermined upper are considered as the data backlog size and predetermined threshold, and raising step is considered as increasing data rate and/or transmission power)

Therefore, it would have been obvious to a person of ordinary skills in the art at the time the invention was made to combine raising data rate or power transmission when the data backlog size (queue length) is a above predetermined threshold (upper limit) taught by Schiff to the resource allocation method disclosed by Iuoras et al. for purpose of increasing resources for a user(s) with more resource consuming in a communication network. The proper motivation is to efficiently allocate resources between users in a communication network.

7. **Claim 3-6** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Iuoras et al. (U.S. Patent # 6,445,707 B1)** in view of **Liu et al. (U.S. Patent Application Publication # 2002/0178311 A1)**.

Consider **claim 3 as applied to claim 1 above**, Iuoras et al. disclose said at least one gateway access terminal comprises a plurality of gateway access terminals (see FIG. 1 for Gateway Terminals 12. Iuoras et al. also disclose queue size management in lines 39-55 of column 35 with regards to data backlog size),

However, Iuoras et al. fails to disclose wherein the raising step comprises raising the priority of the gateway access terminal having the largest data backlog size.

In the same field of endeavor, Liu et al. clearly disclose the raising step comprises raising the priority of the gateway access terminal having the largest data

backlog size (see FIG. 1A and lines 1-10 of paragraph [0028] where it sys, "an arbitration method and apparatus for arbitrating between a plurality of N queues requiring access to a resource wherein each queue is accorded a priority based on the length of the queue, that is the number of data packets enqueued at the corresponding queue... the lengths of each of the queues are determined and compared, and the queue having the greatest length is accorded the highest priority in an arbitration scheme." The N queues are considered as N data backlog in gateway access terminals and the length of each queue is considered as the size of data backlog).

Therefore, it would have been obvious to a person of ordinary skills in the art at the time the invention was made to incorporate the priority scale based on the largest data backlog size as taught by Liu et al. to gateway access terminals disclose by Iuoras et al. for purpose of increasing resources for a user(s) with more resource consuming in a communication network. The proper motivation is to efficiently allocate resources between users in a communication network.

Consider **claim 4 as applied to claim 3 above**, the claim is rejected for the same reason(s) set forth on **claim 3** since Liu et al. disclose "the queue having the greatest length is accorded the highest priority" which "the greatest length" is broad enough that could be interpreted as a predetermined multiple of the smallest queue length (data backlog sizes), and if the largest queue length is less than the predetermined multiple of the smallest queue length then it could maintain the

priority. Generally, the comparison of the queue lengths could be a design choice to determine how large the queue length should be to raise the priority of the gateway access terminal access.

Consider **claim 5 as applied to claim 3 above**, Liu et al. further disclose comparing data backlog sizes for at least two of said plurality of gateway access terminals (see the arbitration method explained in lines 14-21 of paragraph [0028] which indicates the comparison of the queue lengths based on their weight counts as stated in lines 20-21, "...priority determined based on a current weight count value associated with the queue". The definition of the weight count is disclosed lines 15-17 as the number of data enqueued); and assigning relative priorities for said at least two gateway access terminals based on the relative data backlog sizes of said at least two gateway access terminals (see lines 18-21 where it says, "arbitrating between the plurality of queues based on priorities associated with the queues, each corresponding one of the queues having a corresponding priority determined based on a current weight count value associated with the queue" the relative priorities and relative data backlog sizes are considered as priorities associated with the queues and the current weight count values respectively).

Consider **claim 6 as applied to claim 3 above**, Liu et al. further disclose updating the data backlog size after at least one of said plurality of gateway access terminals transmits data (see lines 21-23 of paragraph [0028] where it says,

"decreasing the weight count value associated with each queue each time the corresponding queue is granted access to the resource". This is considered as updating the data backlog size)

However Iuoras et al. as modified by Liu et al., fail to disclose repeating the identifying, obtaining, and selectively raising steps for said plurality of gateway access terminals.

In addition, Iuoras et al. disclose the continuous monitoring the system to calculate the final fair rate (indicated in lines 15-22 of column 8)

It would have been obvious at the time the invention was made to a person of ordinary skills in the art to repeat the identifying, obtaining, and selectively raising steps for said plurality of gateway access terminals since "continuous monitoring" means to maintain a balance of the system with the fair resource allocation. Any time a user need more or less resources, the allocating system should recognize the user, acquire its buffer, and change its priority. The proper motivation is to continuously maintaining a fair usage of resources in a communication network system.

8. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Iuoras et al. (U.S. Patent # 6,445,707 B1)**.

Consider **claim 7 as applied to claim 1 above**, Iuoras et al. disclose the claimed invention except maintaining the priority of one gateway access terminal if only one gateway user is connected to the gateway access terminal.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize when there is only user is connected to gateway access terminal, its data backlog size would not affected (compared to a threshold level); and therefore, it is not necessary to allocate more (or less) resources to the gateway access terminal, or to change its priority. The proper motivation is to continuously maintaining a fair usage of resources in a communication network system.

9. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over **luoras et al. (U.S. Patent # 6,445,707 B1)** in view of **Thermond et al. (U.S. Patent Application Publication # 2003/0117986 A1)**.

Consider **claim 9 as applied to claim 1 above**, luoras et al. disclose the claimed invention except comparing resource usage of at least one gateway access terminal with a hogger threshold; and adjusting the priority of said at least one gateway access terminal if the resource usage exceeds the hogger threshold.

In the same field of endeavor, Thermond et al. clearly show and disclose comparing resource usage of at least one gateway access terminal with a hogger threshold (see FIG. 1, 9 and lines 1-3 of paragraph [0050] where it says, "the actual usage of a WLAN client/wireless terminal is compared to a respective usage threshold (step 904)." The usage threshold is considered as hogger threshold and the WLAN client/wireless terminal as the gateway access terminal); and adjusting the priority of said at least one gateway access terminal if the resource usage

exceeds the hogger threshold (see lines 3-5 of paragraph [0050] where it says, "If this comparison is unfavorable (as determined at step 906), an adjustment for the WLAN client/wireless terminal is then determined (step 908)." The adjustment is considered as adjustment in priority of using resources. More details are stated in lines 10-15 of column [0049], "Usage thresholds for each WAP consider the level of usage that each wireless terminal is allowed, e.g., a percentage of available resources, a data rate per unit time, or another measure of the wireless terminal's usage of the wireless resources of a WAP").

Therefore, it would have been obvious to a person of ordinary skills in the art at the time the invention was made to incorporate the hogger threshold (usage threshold) for adjusting priority of a gateway access terminal as taught by Thermond et al. to the resource management method disclose by Iuoras et al. for purpose of adjusting resources for a user(s) with more resource consuming in a communication network. The proper motivation is to efficiently allocate resources between users in a communication network.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

    a. Kikuchi (U.S. Patent # 6,831,908 B2) disclose Data Communication Method

    b. Kalliokulju et al. (U.S. Patent # 6,553,006 B1) disclose Resource Allocation in Packet-Format Data Transmission

c. Walton et al. (U.S. Patent # 6,493,331 B1) disclose Method and Apparatus fpr Controlling Transmissions of a Communication System

d. Satt et al. (U.S. Patent Application Publication # 2004/0032828 A1) disclose Service Management in Cellular Network

e. Balachandran et al. (U.S. Patent Application Publication # 2004/0208183 A1) disclose Scheduler and Method for Scheduling Transmissions in a Communication Network

f. Gardner et al. (U.S. Patent Application Publication # 2003/0045237 A1) disclose Method and Apparatus for Determining the Transmission Data rate in a Multi-User Communication System

g. Kim (U.S. Patent # 5,999,534) disclose Method and Apparatus for Scheduling Cells for Use in a Static Priority Scheduler

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allahyar Kasraian whose telephone number is (571) 270-1772. The examiner can normally be reached on Monday through Friday 8:00 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Allahyar Kasraian
AK/ak
July 5, 2007

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